NAMAT

uPVC FITTINGS

FOR DRAINAGE APPLICATIONS

NATIONAL FACTORY FOR PLASTIC PIPES & FITTINGS (NEPRO)

NAMAT

uPVC NON PRESSURE FITTINGS

Manufacturing Plant,JEDDAH
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NAMAT

بسم الله الرحمن الرحيم

تشهد الهيئة العربية السعودية للمواصفات والمقاييس بأن
المصنع الوطني لإنتاج أنابيب وقطع البلاستيك
قد رخص له باستعمال علامة الجودة على إنتاجه من
أنابيب عديد كلوريد الفينيل
غير اللدن لمياه الشرب
لمطابقته للمواصفة القياسية السعودية
رقم ١٤/١٩٩٨م
وتستدعي هذه الشهادة حتى تاريخ ٢٩/٦/٢٠٠٢

رقم الترخيص ١٤١٦/٩٤
تاريخ ١٤٢١/٧/١٠هـ

CERTIFICATE OF REGISTRATION

MOODY INTERNATIONAL CERTIFICATION

This is to certify that the Quality Management Systems of :

New Product Industries
National Factory for Plastic Pipes and Fittings (NEPRO PLASTICS)
P.O.Box 460, jeddah, 21411
Kingdom of Saudi Arabia

have been assesed and registered against the following quality assurance standards/s:

ISO 9002:1994

The scope of the registration:

The Manufacture of uPVC and CPVC Plastic Pipe and Fitting

Certificate Number **0006483**

Date **7th July 2000**

Signed for and on behalf of
Moody International Certification Limited

The Lord
Chairma

This is not a legal document and cannot be used as such. The use
in respect of those activities covered by the Accreditation Certifi

DYKA
PLASTIC PIPE SYSTEMS

COPY

TO WHOM IT MAY CONCERN

We. Dyka B.V., confirm that the company Namat,
P.O.Box 16375 - Jeddah, is the sole distributor for the kingdom of
Saudi Arabia of Dyka pvc Internal- and external Drainage Fittings .

Sincerely yours,

Dyka B.V.
Marco Scheffer
Area Manager

Petr Rijmers
Export Manager

DYKA B.V.Export
Deccaweg 25
1042AE Amsterdam-Holland
Phone 31(0)20-4480777
Fax 31(0)20-6135645

All sales subject to our standard conditions of sale

DYKA B.V. • Deccaweg 25, 1042 AE Amsterdam Holland
Phone 31(0)20-4480777 • Fax 31(0)20-6135646 • E-mail: Dyka.Int@compuserve.com
Trade register Zwolle 05027284 • Bankers: ABN AMRO 59.78.16.255 • VAT No NL. 006844200 B01
Registered office: Produktieweg 7 • 8331 LJ Steenwijk Holland





NAMAT

uPVC fittings specialist

Integrated quality everywhere.

NAMAT NAMAT NAMAT NAMAT

INTRODUCTION

After more than 30 years of experience and significant performance in the uPVC pipes and fittings industry, the ambition to maintain the innovative production methods inherent in NEPRO is shown by the emergence of a new generation of NAMAT molded fittings for non pressure applications-
This new line of products is manufactured in accordance with ISO 3633, ISO 4435, EN 1401 norms and Draft Saudi Standards 5081-5082-5083 & 5084 for Soil, Waste, and Vents for metric applications. Said standards are fully compatible to be used along with uPVC pipes manufactured according to SSA 14&15/1996, DIN 8061,8062 and ISO R 161/1.
In collaboration with DYKA HOLLAND, a variety of complementary items have been added to complete the current range of NAMAT fittings to satisfy customer requirements.
Sales and marketing is handled by the extensive distribution network of National Marketing Establishment locally and outside the Kingdom of Saudi Arabia.

STANDARDS

NAMAT - uPVC Fittings for Soil, Waste and Vent are fully compatible for use with the following specifications:

SSA 14&15/1996
DIN 19534
BS 4660, BS 5481
PrEN 1452-1
ISO R161/1

COLOUR : Orange - Brown RAL 8023
RANGE : 40MM - 630MM
MARKING : NAMAT, OD of Pipe, uPVO

ROUTINE QUALITY TEST

The continuous contribution of our experienced and committed professionals is undoubtedly our key to achieve the undoubtedly highest quality products. The most advanced technological resources are used in maintaining a regular strict quality control program.
Our labs are equipped with the most sophisticated equipment to conduct both on-line quality control and laboratory tests meeting most international tests like:

1. **Full Dimensional Check**
2. **Pressure test (Short Term)**
3. **Impact Test**
4. **Reversion Test**
5. **Methylene Chloride Test**
6. **Oven Test (ISO 580)**
7. **Leak Proof Test**
8. **Tensile / Elongation test**
9. **Various Other Tests to Maintain Quality**

Advantages of mechanical piping systems
Using lip seal rubber ring

NAMAT lip seal fittings offer mechanical fixing joints and have substantial advantages. Moreover, the revolution by the polymer industry had no doubt played a vital role in the reduction of the water and sewage networks costs. These advantages could be summarized as follows:

1. **Accommodate thermal movement**
2. **Designed to allow ground movement and to absorb settlements up to certain limits without damaging the joints**
3. **Easy and fast installation**
4. **Resistant to angular and diametrical deformation strength**
5. **Light in weight; uPVC is approximately half the weight of copper pipe, one fifth of the weight of steel pipe and one-tenth the weight of cast iron pipes**
6. **Transport and handling is therefore both simple and easy**
7. **Considerable cost-saving in labour and material**
8. **Resistant to a wide variety of chemicals**
9. **Does not support combustion**
10. **Impervious to bacteria and fungi attack**
11. **Protective to electrolytic corrosion**
12. **High impact strength, which reduces the possibility of**
13. **damage during handling or assembly**

Sound dampening.

Flow coefficient is at its minimum due to uPVC piping systems' smooth interior surfaces. Normal coefficient of pipe wall roughness k=0,01mm

Material Properties

Density	**: 1.42 - 1.43 g/cc**
Tensile Strength	**: 48.3 mpa**
Impact Resistance	**: 1.6 ft.lbs / in. of notch at 230° C**
Modulous of elasticity	**: 2900 mpa.**
Co-efficient of elongation	**: 2.8 x 10^{-5} in/in/°F.**
Thermal Conductivity	**: 0.19w/M.K**
Water Absorption	**: 0.05 %.**
Surface Resistance	**: <10^{-12} 22 ohm.**

Chemical Resistance.

uPVC fittings are resistant to corrosion that could be caused by ground raw and mineral water. It is resistant to most solutions of acids, alkalies, salts, oxidizing agents and major solvents that can be dissolved in water. High resistance to abrasion is also an important aspect.
Where special liquids are to be transported, please contact our Technical Department for the appropriate advice.

Table. 1

For 100 Joints use the following amounts of Lubricant:

Diameter D/N	Pipe outside Dia /mm	Kilogram Of Lubricant
DN 50	63	0.50
DN 80	90	0.85
DN 100	110	1.10
DN 125	140	1.35
DN150	160	1.80
DN200	225	2.40
DN 250	280	3.15
DN 300	315	3.85

REGISTER COUPLING

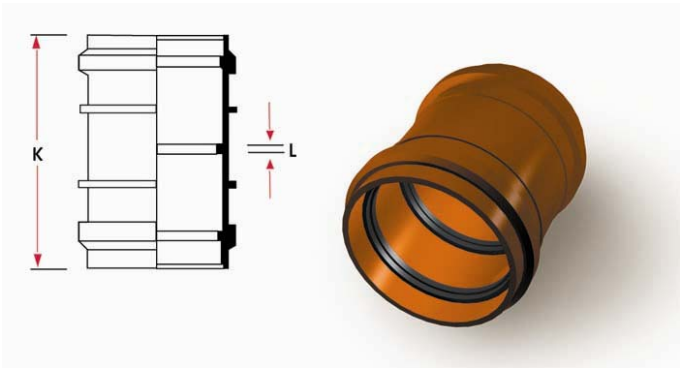


Table .2

ORDERING CODE	SIZE mm	DIMINUTION		WALL THICKNESS mm
		K1 mm	L mm	
SND 02.00.10*	40	111	3	3.2
SND 02.00.20	50	108	3	3.2
SND 02.00.30	75	131	3	3.2
SND 02.00.40	110	158	3	3.2
SND 02.00.50*	160	200	4	4.7
SND 02.00.60*	200	216	2	4.1
SND 02.00.70*	250	252	2	5.5
SND 02.00.80*	315	293	2	6.9

REPAIR COUPLING

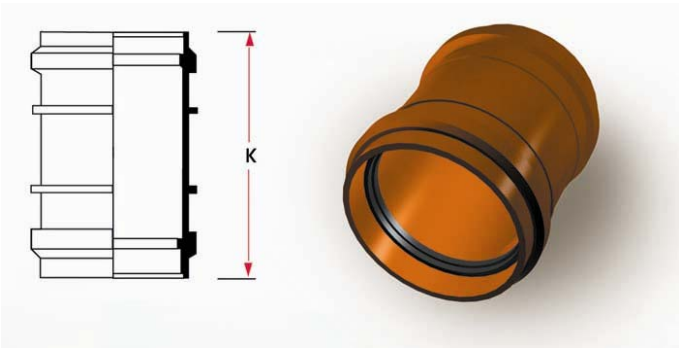


Table .3

ORDERING CODE	SIZE mm	DIMINUTION K1 mm	WALL THICKNESS mm
SND 03.00.10*	40	111	3.2
SND 03.00.20	50	108	3.2
SND 03.00.30	75	131	3.2
SND 03.00.40	110	158	3.2
SND 03.00.50*	160	200	4.7
SND 03.00.60*	200	216	4.1
SND 03.00.70*	250	252	5.5
SND 03.00.80*	315	293	6.9

BEND 15

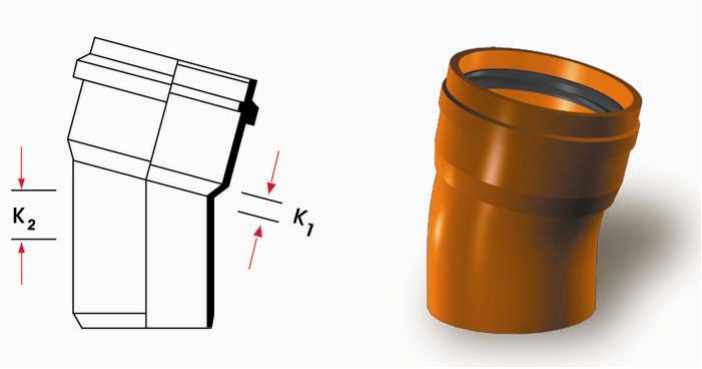


Table .4

ORDERING CODE	SIZE mm	DIMINUTION		WALL THICKNESS mm
		K1 mm	L mm	
SND 04.15.20	50	6	9	3.2
SND 04.15.30	75	6	11	3.2
SND 04.15.40*	110	12	19	3.2
SND 04.15.50*	160	13	19	4.7
SND 04.15.60*	200	15	23	4.1
SND 04.15.70*	250	19	30	5.5
SND 04.15.80*	315	23	38	6.9

BEND 30

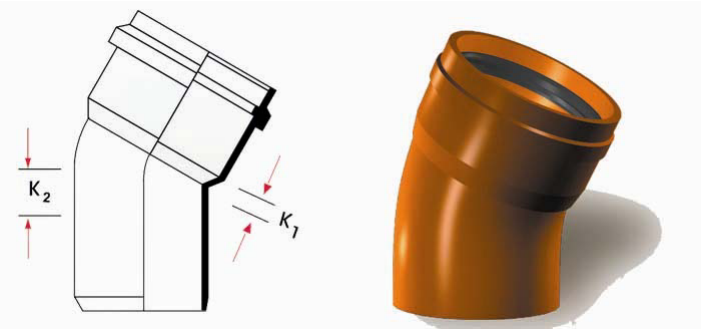


Table .5

ORDERING CODE	SIZE mm	DIMINUTION		WALL THICKNESS mm
		K1 mm	L mm	
SND 04.15.20	50	10	12	3.0
SND 04.15.30	75	11	15	3.0
SND 04.15.40*	110	17	21	3.0
SND 04.15.50*	160	24	30	3.6
SND 04.15.60*	200	30	38	4.5
SND 04.15.70*	250	37	49	6.1
SND 04.15.80*	315	47	61	7.7

BEND 45

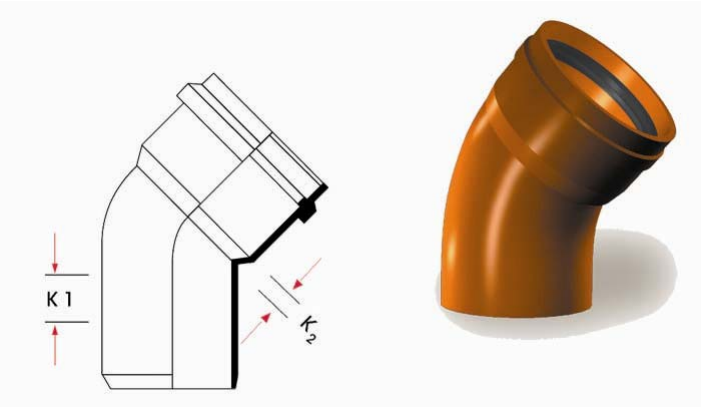


Table .6

ORDERING CODE	SIZE mm	DIMINUTION		WALL THICKNESS mm
		K1 mm	L mm	
SND 04.45.10*	40	15	21	3.2
SND 04.45.20	50	12	16	3.2
SND 04.45.30	75	23	29	3.2
SND 04.45.40	110	25	29	3.2
SND 04.45.50*	160	38	42	4.7
SND 04.45.60*	200	46	54	4.5
SND 04.45.70*	250	57	69	6.1
SND 04.45.80*	315	72	86	7.7

BEND 87½

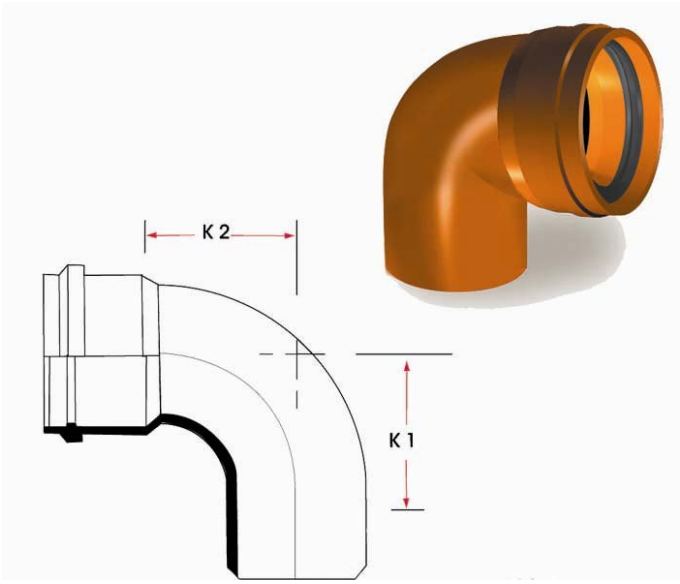


Table .7

ORDERING CODE	SIZE mm	DIMINUTION		WALL THICKNESS mm
		K1 mm	L mm	
SND 04.87.10*	40	37	39	3.2
SND 04.87.20	50	36	40	3.2
SND 04.87.30	75	62	67	3.2
SND 04.87.40	110	78	86	3.2
SND 04.87.50*	160	132	110	4.7
SND 04.87.60*	200	105	113	4.5
SND 04.87.70*	250	132	143	6.1
SND 04.87.80*	315	166	180	7.7

BRANCH 45

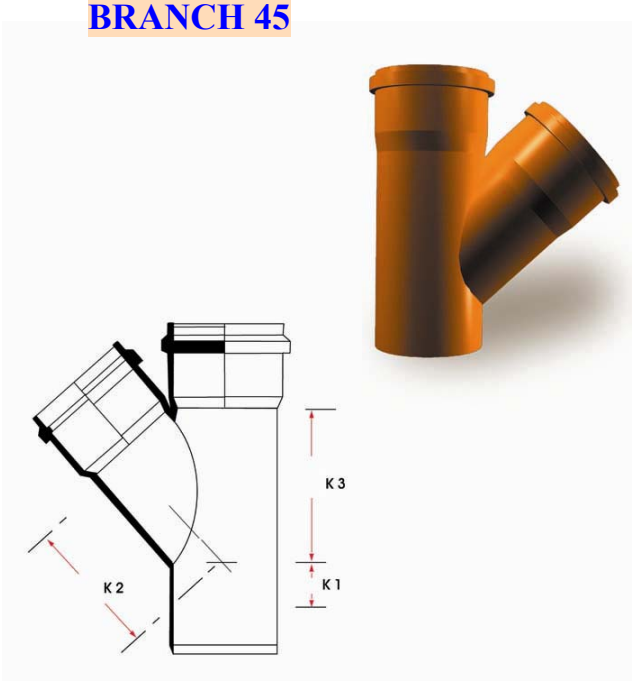


Table .8

ORDERING CODE	SIZE mm	DIMINUTION			WALL THICKNESS mm
		K1 mm	K2 mm	K3 mm	
SND 05.45.11	40X40	10	49	49	3.2
SND 05.45.22	50X50	14	62	62	3.2
SND 05.45.33	75X75	23	95	95	3.2
SND 05.45.44	110X110	25	136	136	3.2
SND 05.45.43	110X75	0	107	95	3.2
SND 05.45.42	110X50	4	120	112	3.2
SND 05.45.55*	160X160	38	198	198	4.7
SND 05.45.56*	160X110	7	172	163	4.7
SND 05.45.66*	200X200	46	241	241	5.9
SND 05.45.65*	200X160	19	221	214	5.9
SND 05.45.64*	200X110	-16	195	180	6.1
SND 05.45.77*	250X250	57	301	301	6.1
SND 05.45.76*	250X200	24	274	268	6.1
SND 05.45.75*	250X160	-3	254	241	6.1
SND 05.45.74*	250X110	-37	228	206	6.1
SND 05.45.88*	315X315	72	378	378	7.7
SND 05.45.87*	315X250	28	344	355	7.7
SND 05.45.86*	315X200	-5	318	302	7.7
SND 05.45.85*	315X160	-32	297	275	7.7
SND 05.45.84*	315X110	-66	272	240	7.7

BRANCH 87½

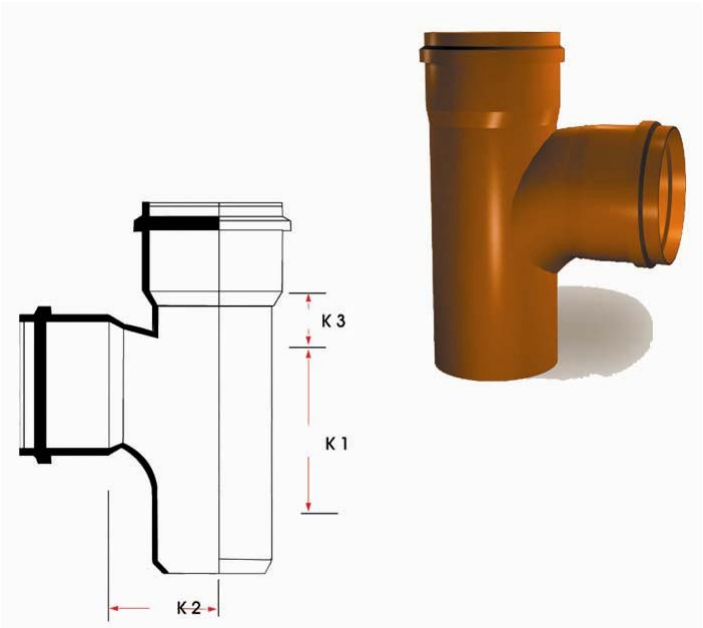


Table .9

ORDERING CODE	SIZE mm	DIMINUTION			WALL THICKNESS mm
		K1 mm	K2 mm	K3 mm	
SND 05.87.11	40X40	37	39	25	3.2
SND 05.87.22	50X50	46	50	31	3.2
SND 05.87.33	75X75	62	67	44	3.2
SND 05.87.44	110X110	83	87	62	3.2
SND 05.87.43	110X75	52	80	45	3.2
SND 05.87.42	110X50	28	60	32	3.2
SND 05.87.55*	160X160	80	93	93	4.7
SND 05.87.56*	160X110	60	87	65	3.6
SND 05.87.66*	200X200	105	111	111	4.5
SND 05.87.65*	200X160	86	108	91	4.5
SND 05.87.64*	200X110	61	106	67	4.5
SND 05.87.77*	250X250	90	132	100	6.1
SND 05.87.76*	250X200	90	134	100	6.1
SND 05.87.75*	250X160	132	136	143	6.1
SND 05.87.74*	250X110	132	143	143	6.1
SND 05.87.88*	315X315	166	178	178	7.7
SND 05.87.87*	315X250	166	174	178	7.7
SND 05.87.86*	315X200	166	170	178	7.7
SND 05.87.85*	315X160	93	164	104	7.7
SND 05.87.84*	315X110	93	162	104	7.7

SOCKET PLUG

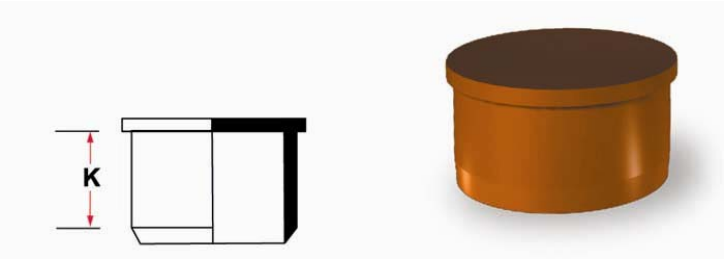


Table .10

ORDERING CODE	SIZE mm	DIMINUTION K mm	WALL THICKNESS mm
SND 06.00.10*	40	43	2.0
SND 06.00.20*	50	45	2.0
SND 06.00.30*	75	59	3.0
SND 06.00.40*	110	41	3.0
SND 06.00.50*	160	53	3.6
SND 06.00.60*	200	64	4.5
SND 06.00.70*	250	95	6.1
SND 06.00.80*	315	100	7.7

LEVEL INVER REDUCER

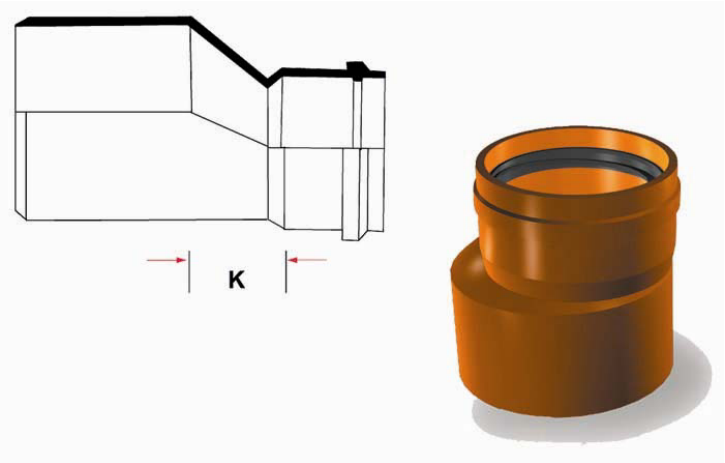


Table .11

ORDERING CODE	SIZE mm	DIMINUTION K mm	WALL THICKNESS mm
SND 07.00.11	40X32*	28	2.0
SND 07.00.21	50X32*	26	2.0
SND 07.00.22	50X40*	21	2.0
SND 07.00.33	75X50*	45	3.2
SND 07.00.43	110X50*	50	3.2
SND 07.00.44	110X75*	35	3.2
SND 07.00.55	160X110*	34	3.6
SND 07.00.66	200X160*	29	4.5
SND 07.00.77	250X200*	36	6.1
SND 07.00.88	315X250*	48	7.7

ACCESS PIPE

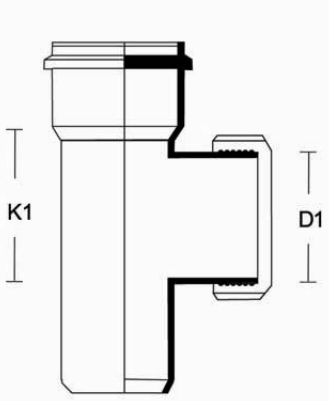


Table .12

ORDERING CODE	SIZE mm	DIMINUTION		WALL THICKNESS mm
		K1 mm	L mm	
SND 12.00.40*	110	137	96	3.2
SND 12.00.50*	160	251	114	4.7

P-TRAP

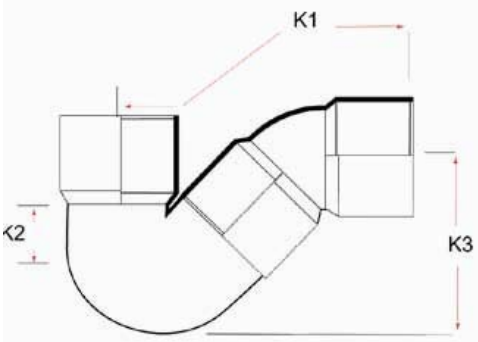


Table .13

ORDERING CODE	SIZE mm		DIMINUTION			
	INLET	OUTLET	L mm	K1 mm	K2 mm	K3 mm
SND 13.00.44*	110	110	150	206	127	153
SND 13.00.44*	110	110	150	206	127	153

Storage

Fittings are stored in their original packaging. If they are to be removed from their boxes, separate them by geometric type and size. Never combine your plastic fittings inventory with metallic materials. Avoid storing PVC fittings near an open flame or source of extreme heat.

Instillation

When installing a push fit joint pipeline, the following steps must be followed:-

1 • **Cut the pipe (where necessary) at right angles to the axis using a guided saw**
2 • **Use a rough file or chamfering tool to chamfer the shortened pipe end to an angle approximately 15"**
3 • **Debur the chamfered ends**
4 • **Clean the out side of the spigot end and the inside of the socket and check the position of the ring seal**
5 • **Mark the socket depth on the spigot end - deduct the greater of 3 mm per meter of pipe length or 110 mm in total**
6 • **Thinly lubricate the chamfered surface of the spigot end with lubricants, don't use oil or grease**
7 • **Push the pipe spigot into the socket until the marking line is reached**
8 • **Carefully support the pipe and gradually fill the trench with bedding material**

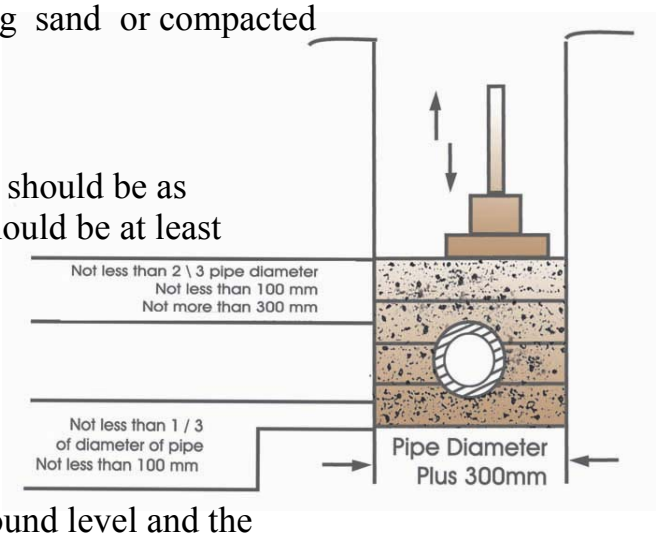
Trench Construction

1 • Trench Contour

The trench bottom should be continuous, relatively smooth and free of rooks. Where a ledge of rooks or boulders is encountered, it is advisable to pad the trench bottom using sand or compacted fine-grained soil.

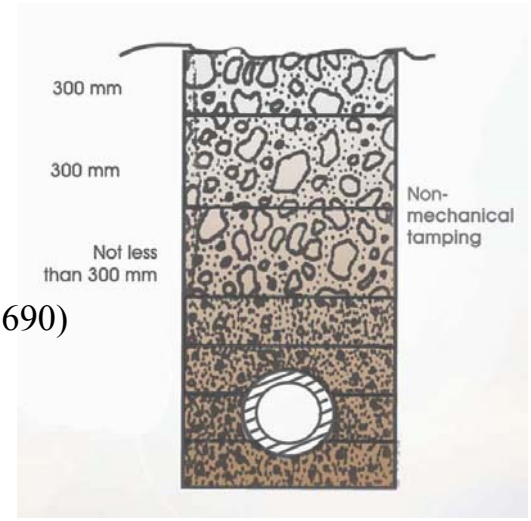
2 • Trench Wrdth

The width of the trench at the crown of the pipe should be as narrow as possible. The recommended trench should be at least equal to the pipe outside diameter plus 300 mm.



3 • Trench Depth

The trench depth is the distance between the ground level and the upper level of the pipe.
Trench depth ≥ 1 meter, or
Trench depth ≥ 1.5D, where D is the diameter of the pipe.



Installation Expensed to Normal Vehicle Traffic

Trench depth

The minimum total cover should be not less than (ASTM F 690) Requirements

- Pipe 32 to 63 mm in diameter 450 mm
- Pipe 75 to 110 mm in diameter -600mm
- Pipe 140 to 400 mm in diameter - 750 mm

Pipe above 400 mm in diameter - 900 mm

Use of Manholes to Reduce Excavation Cost

Manholes should be provided at all deviations from the main line and slopes at a distance apart not exceeding 90 meters

Ground Features and laying Tips

The lateral reaction of the ground caused by the deformation of the pipe, depends on the soil and laying methods and on the level of tamping needed for back filling material

External Loads on a Buried Pipe

The total external load on the pipe $P=E_L+H_L+T_L$
Where E_L : Earth load
H_L : Hydrostatic load
T_L: Traffic load

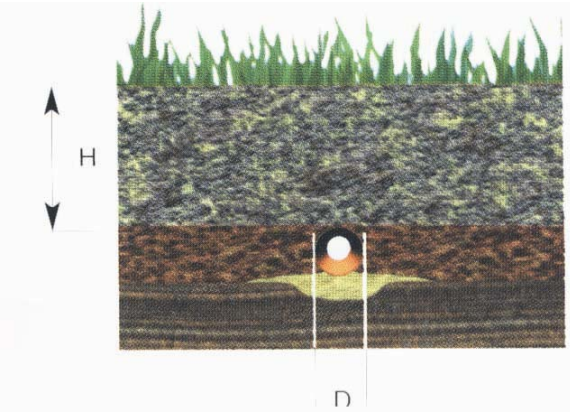


Figure " 1 "

Calculations for loads on a buried pipe

1 • Earth load $E_L = F.H$ kg/m²
Where F = porter density of sand
H = depth of the trench

2 • Traffic load $T_L = 3/2 \times P/(h+d/2)^2 \ \Psi$ kg/m²
Where Ψ = dynamic factor for vehicle = 1 +0.3 H
P = concentrated load of the passing vehicle
(Normally P = 3000 kg for yard motor vehicle
P = 6000 kg for light motor vehicle
P = 9000 kg for heavy motor vehicle

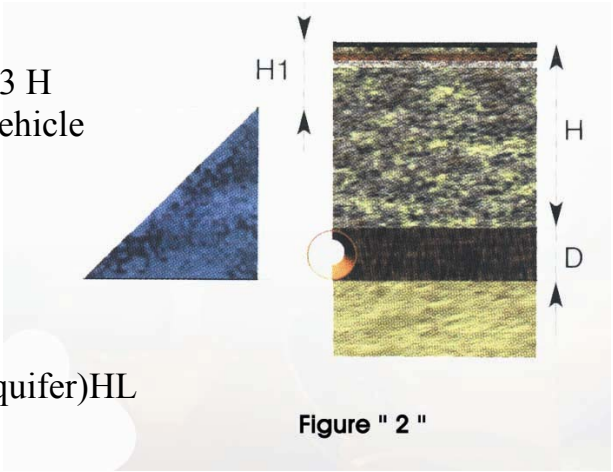


Figure " 2 "

3 • Hydrostatic load
(The load due to the presence of the aquifer)HL

H_L = a. (H - HI+ D/2) kg/m2
a = specific weight of the water (kg/m3)
H = the distance between the plane of site and the level of the aquifer

Testing

Controlled air pressure or Water test can be used to test drainage systems.

Testing of installations

1 • Water Test
2 • Air Tightness test

Water Test

Make sure all outlets are closed except the highest level. Allow for a water head of 1.2m using standard pipe. Fill the stand with water and leave for a few hours. A drop of 50 mm is allowed in accordance with values shown in the table below.

Table. 14

DURATION OF WATER TEST (MINS) FOR 50 MM WATER DROPS							
2.5	5.0	7.5	10	15	20	25	40
MINIMUM LENGTH OF PIPE UNDER TEST (METER)							
60	30	20	15	10	7.5	6.0	5
80	40	27	20	13	10.0	8	6.5
120	60	40	30	20	15.0	12	10.0
-	90	50	40	25	20.0	15	12.5
-	120	60	45	30	25.0	18	15
-	-	80	60	40	30.0	24	30
-	-	100	75	50	37.0	30	25

All the above figures are given in good faith and would not be part of any contract or any warranty

AIR TIGHTNESS TEST

C-1 Apparatus

C-1.1 Apparatus to which the assembly can be connected that allow controlled air pressure to be applied is needed. A suitable apparatus is shown in figure C.I
C-1.2 Precision pressure gauge or manometer is also needed.

C-2 Toil Assembly

Pipes, fittings and joints in accordance with international standards shall be used.
The test assembly shall consist of a specimen of pipe mounted in two clamped blocks. (Seal one end of the pipe with a plug that has a combined water and air inlet. All fittings shall then be sealed at all open ends with plugs, one of which has a water outlet and shut-off valve mounted centrally in the sealing plug.)

C-3 Procedure

- C-3.1 Apply a strong solution of soapy water or detergent around the angular space between the mouth of the fitting and the pipe.
- C-3.2 Open the water outlet valve and close the air inlet valve on the pipe shut-off.
- C-3.3 Open the water inlet valve, when the assembly is half full, that is when water flows from the outlet, close the water inlet and outlet valves.
- C-3.4 Open the air inlet valve and increase the internal air pressure to 0.01MPa(0.1bar + 0.01 bar) at ambient temperature. Maintain this pressure for 5 min.
- C-3.5 Note, during this 5 minute period, any leaks which occur between the mouth of the fitting and the pipe, and which are evident by the formation of bubbles.
- C-3.6 Deflect the pipe manually in the socket of the fitting until it reaches the maximum permissible deflection for the particular joint under test. Carry out this deflection at 00,900, 8000 and 2700(see figure C1) maintaining it for 1 min in each of these directions.

Test Requirements

No water leaks should occur, but if bubbles appear at any time during the test, a new application of soapy water or detergent should be applied. If emission of bubbles continues during the test, the joint shall not be deemed to meet the requirements of the test.
The test requirements shall be fulfilled for all types of test assembly, including those combining minimum spigot ends and maximum sockets. The pressure shall be allowed to drop as specified in the table below.

Table. 15

Air test

DIA. OF PPE	AIR TEST U TUPE DUR. (MINS)	WATER DROP MAX (MM)
75	1.5	25.0
110	2.0	25.0
160	3.0	25.0
200	4.0	25.0
250	4.5	25.0
315	5.0	20.0
400	6.0	20.0

The above figures are given in good faith and would not be part of any contract or any warranty.

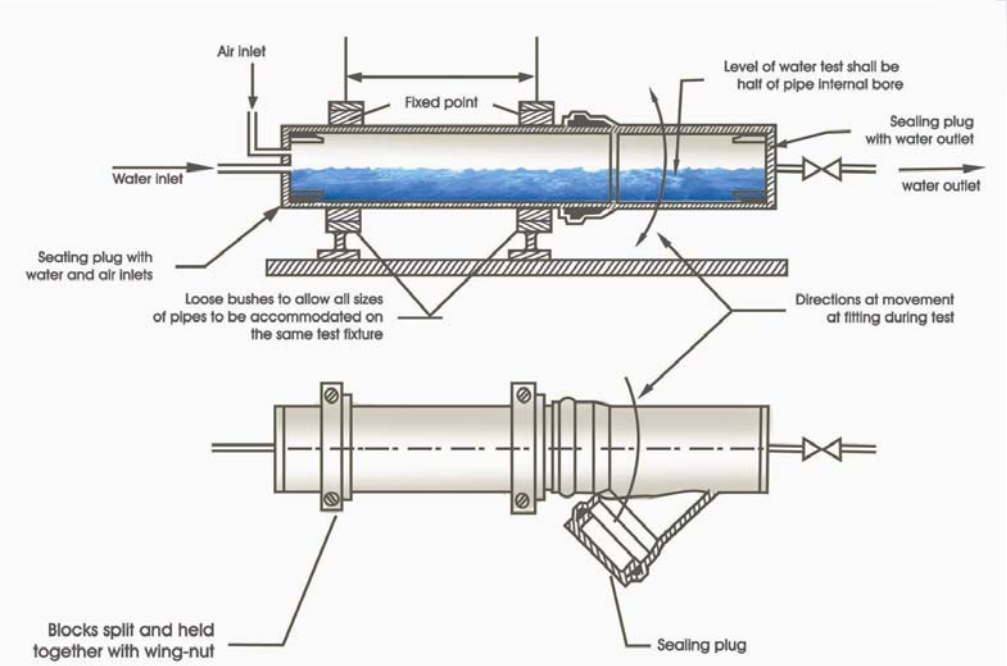
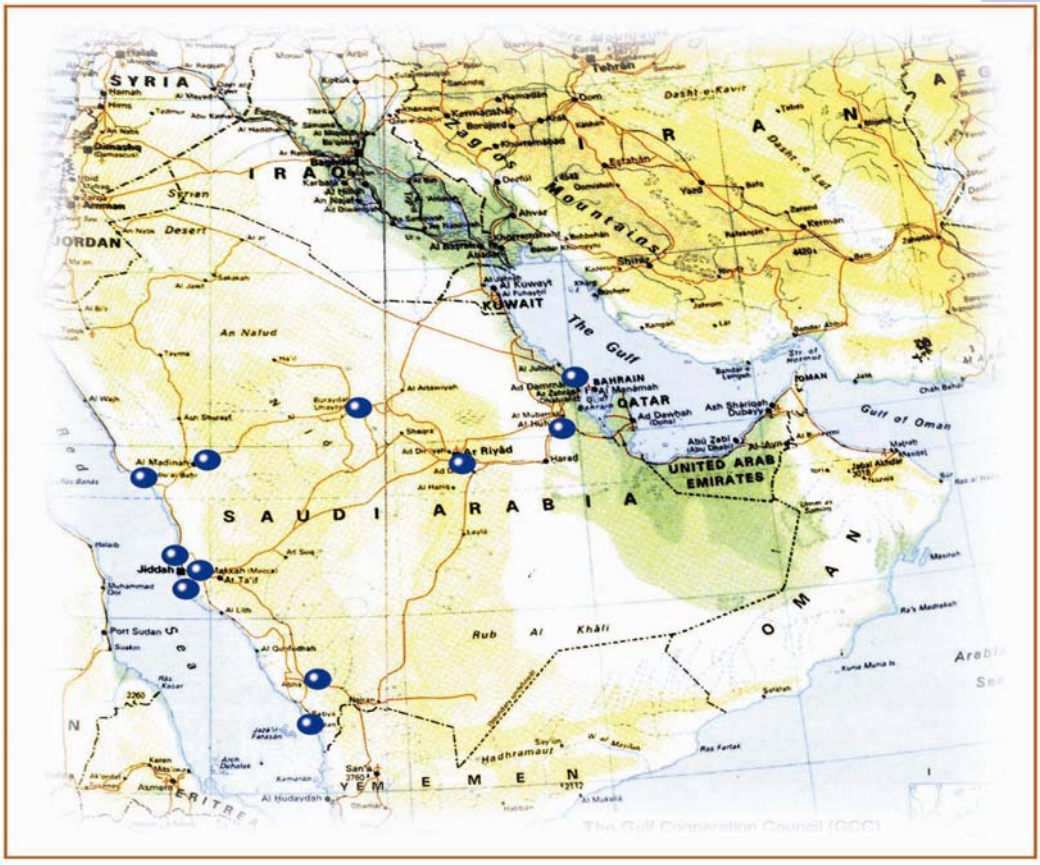


Figure C-1 TEST ASSEMBLY FOR AIRTIGHTNESS TEST

Quality assurance

NAMAT maintain a rigorous quality control program using the most sophisticated equipment and procedure. Both on line QC checks and in lab testing are regularly conducted.
NAMAT has high technology molding machines, with advanced automated tooling ,witch permit volume production fittings with exceptionally high consistency in terms of dimensional accuracy , mechanical strength and surface finish.

‘ * ’ Marked items are imported and sizes up to630mm available on request.
All the above figures are given in good faith and would not be part of any contract



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